

The Long-Term Impact of Service-Learning on Graduates' Civic Engagement and Career Exploration in Hong Kong

Carol Ma Hok-ka, Chad Chan Wing-fung,
and Alfred Chan Cheung-ming

Abstract

Service-learning (SL) is a relatively new pedagogy in Hong Kong and so far, no study of SL's long-term impact in Hong Kong exists. To explore SL's impacts on Hong Kong students, researchers conducted a quantitative study to compare graduates with SL experience to graduates without SL experience in terms of three domains: (1) adaptability, brain power, and creativity (ABC) skills; (2) civic responsibility; and (3) career exploration. Most prominently, this study found that students with SL experience have significantly higher scores in civic responsibility than do their counterparts without SL experience; they are more willing to be involved in community service after graduation, and they invest more hours of service per month. This study indicates that from a long-term perspective, SL participants benefit in terms of greater civic responsibility, better career exploration, and enhanced whole-person development (ABC) skills.

Introduction

Service-learning (SL) as a pedagogy has been advocated for in the United States for over 20 years; however, no longitudinal study has yet focused on individual institutions and their students regarding the impacts of service-learning. Though a few national impact studies (Astin *et al.*, 2006; Gray *et al.*, 1999) were conducted to investigate the effect of SL on students in the United States, these are not longitudinal studies focused on an individual institution and its students. Additionally, most SL researchers in Hong Kong have focused on the implications and evaluations of SL programs (Chan, Lee, & Ma, 2009; Chan, Ma, & Fong, 2006; Ngai, 2006, 2009; Powers, 2010). Therefore, a discernible need exists for a study focused on revealing the long-term impact of SL on students, especially for the development of civic responsibility (Bringle & Steinberg, 2010; Hébert & Hauf, 2015; Prentice & Robinson, 2010) and career exploration (Huff, Zoltowski, & Oakes, 2016; Karlsson, 2016).

Lingnan University, the context for this research study, is the only liberal arts university in Hong Kong emphasizing students' whole-person development. In 2006, the Office of Service-

Learning (OSL) was established with support from a donor, Mr. Michael Leung, making Lingnan the first university in Hong Kong to have an office dedicated to SL. The OSL has promoted SL at Lingnan University and integrated SL into the curriculum for over 7 years. Students who choose to take SL projects in the three credit-bearing courses with SL elements are required to serve their community with at least 30 hours (including training and service) by using their classroom-based knowledge. To examine SL's impact on students, our researchers have asked students to complete pre- and post-test questionnaires before and after participating in SL. In 2011, OSL conducted a 5-year-outcome study of the local programs involved, which included 1,372 participating students in the SL programs from the 2006–2007 school year to the 2010–2011 school year. The results showed that through participating in SL programs, students demonstrated significant gains in six domains: subject-related knowledge, communication skills, organizational skills, social competence, problem-solving skills, and research skills. Lingnan constitutes a good research site for conducting long-term impact studies of SL on graduates because it has a good track record for impact on students' learning.

For the study of SL's impact on graduates, we conducted two surveys in 2011 to explore SL's long-term impact in terms of graduates' sense of civic responsibility and career exploration. For Phase I, in April 2011, we collected 425 valid questionnaires from the alumni who participated in SL programs during their undergraduate studies. With support from the registry, we conducted Phase II with the alumni who did not participate in SL programs during their undergraduate study. From this population, we collected 345 valid questionnaires in November 2011. We then compared the findings of both phases and summarized them for the study of the long-term effects of SL participation on graduates.

Objectives

This research aimed to compare and summarize the findings of the above two phases with the following objectives:

1. to examine SL's long-term effects among graduates,
2. to explore the student learning outcomes' long-term impact, and
3. to study SL's influence on civic responsibility and career exploration among graduates.

Methodology

In order to assess SL's long-term impact among graduates in terms of their learning outcomes, namely civic responsibility and career exploration, we conducted this longitudinal quantitative study in two phases. We interviewed the alumni with SL experience (the experimental group) and those without SL experience (the comparison group) either by phone or by e-mail in April 2011 and in September 2011, respectively. We then compared the findings of the two phases and used them as a basis for this study's conclusions.

Sample

We applied purposive sampling in both phases because of the known sampling frame and the goal of generating the highest possible response rate. In this data collection method, elements are chosen based on the purpose of the study, and selection targets a particular group of people (*Bernard, 2002; Bernard et al., 1986; Ma, 2007*). The project begins with an objective in mind and usually has one or more specific subset groups. The sample is thus selected to include those people who are interested in the study and who meet the study criteria.

The experimental group was composed of Lingnan University alumni who graduated between 2004 and 2010 and who completed at least one SL course. The comparison group consisted of alumni who graduated between 2004 and 2010 and did not attend any SL courses. Although we included all of the aforementioned alumni in the initial sample, we found conducting the research with the entire sample to be difficult since contact information for the alumni was faulty or outdated. For instance, international students' contact information was no longer available after they left Hong Kong. Therefore, we included data only from students who graduated in the same period from 2005 to 2010 in order to facilitate an accurate comparison. In the end, the final numbers of the experimental group and of the comparison group were 425 and 345, respectively.

Procedures

We designed two sets of quantitative questionnaires to understand SL's long-term impacts. The questionnaires were mainly composed of closed-ended and scaled questions. Each questionnaire was divided into different sections: students' general demographic information, their SL participation (for the experimental group) or other community involvement service during university years (for the comparison group), their current employment profile,

their community involvement since graduation, their evaluation of the SL program (not applicable to the comparison group), their perceived skills, their sense of civic responsibility and engagement, their career exploration, and their reasons for not choosing to participate in SL (not applicable to the experimental group).

In order to better understand SL's impact on the experimental group, this group was asked five additional questions:

1. What did you learn from the SL program that you might not have learned in a traditional classroom setting? Please give an example to illustrate your answer.
2. Did SL change your worldview and attitude towards life? If yes, how? If no, why?
3. Did SL help you in your career development? If yes, in what aspects?
4. What comments do you have for SL?
5. Would you recommend SL to your friends? Why?

For the experimental group, we first e-mailed the survey to participants in March 2011. We followed the e-mail with a telephone survey, conducted by trained interviewers. We used telephone surveys to minimize erroneous data through personal assistance and to reach as many of the targeted population as possible. Interviewers went through the questionnaire with the interviewees. If the interviewee did not remember participating in SL or did not remember details about their involvement, we excluded their interview data. For the comparison group, we sent an online survey invitation to participants via e-mail and then followed up with two rounds of Short Message Service (SMS) reminders and one round of telephone reminders in November 2011. We adopted SMS as a direct form of contact since most of the e-mail addresses were Lingnan University accounts which the students most likely did not use after graduation.

Measurement

We systematically divided the questionnaire's core questions into three parts: learning outcomes (ABC skills; 14 items), civic responsibility (23 items), and career exploration (four items). Each part was based on a well-justified and validity-proven scale used in previous studies (*Chan et al., 2006; Furco, 1995; Furco, Muller, & Ammon, 1998; Merrell, 2002; National Service-Learning Cooperative, 1999*). We eliminated a few items from these scales because they were not

relevant to this study or duplicated other items, and we modified a few items so they would be culturally relevant to the Hong Kong student/graduate population. For example, three questions categorized under communication skills were very similar: "I am tense and nervous while participating in group discussions with peers/agencies/course instructors/coordinators"; "Presentation in front of peers/agencies/course instructors/coordinators usually makes me uncomfortable"; and "Generally, I am comfortable while participating in a discussion with peers/agencies/course instructors/coordinators." Therefore, we deleted two questions, leaving only one. For the scale of career exploration, we selected four items out of eight for comparison purposes because other items were related to SL's effect (for the experiential group) and to community service involvement during undergraduate years (for the comparison group) that we could not compare directly. The parts of evaluation of SL or reasons for not joining SL were added to the applicable questionnaire based on the target group. (A full description of the questionnaire is available through the corresponding author.)

Results

Demographic Characteristics

Respondents with SL experience and those without SL experience completed 425 and 345 valid questionnaires, respectively. We found diverse characteristics in gender, academic background, work experience, and community involvement between these two groups of alumni (details in Table 1).

Table 1. Demographic Data of Respondents

	Participated in SL		Did not participate in SL		Total	
	n	%	n	%	n	%
Gender						
Male	119	28.00%	151	43.77%	270	35.06%
Female	306	72.00%	194	56.23%	500	64.94%
Degree						
BA	32	7.53%	24	6.96%	56	7.27%
BSS	178	41.88%	104	30.14%	282	36.62%
BBA	215	50.59%	217	62.90%	432	56.11%

	Participated in SL		Did not participate in SL		Total	
	n	%	n	%	n	%
Year of Graduation						
2005	38	8.94%	55	15.94%	93	12.08%
2006	33	7.77%	13	3.77%	46	5.97%
2007	62	14.59%	61	17.68%	123	15.97%
2008	97	22.82%	74	21.45%	171	22.21%
2009	100	23.53%	59	17.10%	159	20.65%
2010	95	22.35%	83	24.06%	178	23.12%
GPA						
Below 1.00	0	0.00%	0	0.00%	0	0.00%
1.00-1.49	1	0.24%	0	0.00%	1	0.13%
1.50-1.99	6	1.44%	4	1.16%	10	1.31%
2.00-2.49	92	22.12%	59	17.10%	151	19.84%
2.50-2.99	193	46.39%	176	51.01%	369	48.49%
3.00-3.49	109	26.20%	95	27.54%	204	26.81%
3.50-4.00	15	3.61%	11	3.19%	26	3.42%
Average GPA		2.78 (M)		2.80 (M)		2.79 (M)
		0.39 (SD)		0.37 (SD)		0.38 (SD)
Current Job						
Management	47	11.22%	45	13.04%	92	12.04%
Professionals	61	14.56%	80	23.19%	141	18.46%
Associate professionals	226	53.94%	74	21.45%	300	39.27%
Clerks	42	10.02%	72	20.87%	114	14.92%
Service workers	24	5.73%	52	15.07%	76	9.95%
Craft workers	0	0.00%	1	0.29%	1	0.13%
Machine operators	0	0.00%	2	0.58%	2	0.26%
Elementary occupations	0	0.00%	1	0.29%	1	0.13%
Graduate students	12	2.86%	5	1.45%	17	2.23%
Not active paid labor/job search	3	0.72%	2	0.58%	5	0.65%
Unemployed	4	0.95%	9	2.61%	13	1.70%
Others	0	0.00%	2	.058%	2	0.26%

	Participated in SL		Did not participate in SL		Total	
	n	%	n	%	n	%
Time taken for seeking first job						
3 months or below	374	90.56%	305	88.40	679	89.58%
4-6 months	36	8.72%	21	6.09%	57	7.52%
7-12 months	3	0.72%	14	4.06%	17	2.24%
More than 12 months	0	0.00%	5	1.45%	5	0.66%
Average time taken for seeking first job	1.77 (M) 1.52 (SD)		2.19 (M) 2.65 (SD)		1.96 (M) 2.12 (SD)	
Work experience						
12 months or below	111	26.88%	55	15.99%	166	21.93%
13-24 months	93	22.52%	83	24.13%	176	23.25%
25-36 months	95	23.00%	63	18.31%	158	20.87%
37-48 months	57	13.80%	71	20.64%	128	16.91%
49-60 months	35	8.47%	30	8.72%	65	8.59%
More than 60 months	22	5.33%	42	12.21%	64	8.45%
Average work experience	28.73 (M) 18.80 (SD)		33.08 (M) 20.61 (SD)		30.71 (M) 19.75 (SD)	
Salary						
HK\$8,000 or below	8	2.01%	10	2.91%	18	2.43%
HK\$8,000-9,999	58	14.57%	45	13.12%	103	13.90%
HK\$10,000-11,999	90	22.61%	23	6.71%	113	15.25%
HK\$12,000-13,999	78	19.60%	25	7.29%	103	13.90%
HK\$14,000-15,999	49	12.31%	70	20.41%	119	16.06%
HK\$16,000-17,999	35	8.79%	76	22.16%	111	14.98%
HK\$18,000-19,999	20	5.03%	58	16.91%	78	10.53%
HK\$20,000 or above	60	15.08%	36	10.49%	96	12.95%
Still involved in Community Service?						
Yes	126	29.79%	99	28.70%	225	29.30%
No	297	70.21%	246	71.30%	543	70.70%
Average number of service hours per month	6.29 (M) 16.57 (SD)		5.54 (M) 7.14 (SD)		5.96 (M) 13.21 (SD)	

In terms of gender, the difference in response was even greater for the alumni with SL experience (28.00% and 72.00% for males and females, respectively) than for the alumni without SL (43.77% and 56.23% for males and females, respectively). In general, more females responded (64.94%, $n = 500$) than males (35.06%, $n = 270$).

For academic background, the majority of all respondents graduated with a degree in business administration (BBA; 56.11%, $n = 432$). This reflects the percentage of the total SL courses offered by different faculties (BBA = 51.20%; BSS = 29.70%; BA = 19.10%) from 2006–2007 to 2010–2011. Among bachelor of social sciences (BSS) degree holders, the alumni with SL experience (41.88%, $n = 178$) constituted a greater percentage than those without SL (30.14%, $n = 104$). Respondents who graduated in 2010 constituted the largest group (23.12%, $n = 178$). The response rate of the alumni who graduated from 2005 to 2007 without SL experience (37.39%, $n = 129$) constituted a greater percentage than those with SL experience (31.30%, $n = 133$). In contrast, more alumni with SL experience (68.70%, $n = 292$) graduated between 2008 and 2010 than alumni without SL experience (62.61%, $n = 216$). Most respondents reported a GPA (grade point average) ranging from 2.50 to 2.99 (48.49%, $n = 369$). Moreover, alumni without SL experience had higher GPAs ($M = 2.80$, $SD = 0.37$) than alumni with SL experience. However, alumni with SL experience had a higher proportion of GPAs between 3.5 and 4.0 (3.61%, $n = 15$) than alumni without SL experiences (3.19%, $n = 11$).

Regarding their work, we investigated the differences in participants' current jobs, the time taken for seeking their first jobs, their overall work experience, and their salaries. For the current job, the top three occupation categories for alumni with SL experience were associate professionals (53.94%, $n = 226$), professionals (14.56%, $n = 61$), and management (11.22%, $n = 47$). The top three occupation categories for alumni without SL experience were professionals (23.19%, $n = 80$), associate professionals (21.45%, $n = 74$), and clerks (20.87%, $n = 72$). The alumni with SL experience reported taking a shorter time to get their first jobs ($M = 1.77$, $SD = 1.52$) than those without ($M = 2.19$, $SD = 2.65$). A larger percentage of those without SL experience were represented in the salary group of HK\$16,000 to HK\$19,999 (US\$2,051 to US\$2,564). However, more alumni with SL experience (15.08%, $n = 60$) than alumni without (10.49%, $n = 36$) reported salaries of HK\$20,000 (US\$2,564) or above.

For community service, we found a similar percentage still involved in community service among alumni with SL experi-

ence (29.79%, $n = 126$) and among those without (28.70%, $n = 99$). Alumni with SL experience were more willing to be involved in community service, and they reported a higher average for service hours per month ($M = 6.29$, $SD = 16.57$) than did alumni without SL experience ($M = 5.54$, $SD = 7.14$). Furthermore, 50.43% of the respondents in the comparison group ($n = 174$) reported that they had been involved in community service during their undergraduate years.

Attitude Toward Service-Learning

The alumni with SL experience provided their evaluation of SL. The mean of the overall evaluation of quality and engagement of SL was 6.97 ($SD = 1.21$), which was above the average in the range of 1 (*totally disagree*) to 10 (*totally agree*). The mean of the 20 items that we used to measure the evaluation of quality and engagement of SL had a range from 6.51 to 7.70 (see Table 2).

Table 2. Evaluation of the Quality and Engagement of Service-Learning Among the Alumni With Service-Learning Experience

1. You were provided clear learning goals that were linked to curricular objectives.	$M = 6.72$ $SD = 1.47$
2. You acquired and applied course concepts and skills through the service project.	$M = 6.64$ $SD = 1.56$
3. You were encouraged to apply higher level thinking skills and more complex information in order to complete the service project.	$M = 6.83$ $SD = 1.56$
4. You were required to use multiple communication methods to deliver information and ideas to different people.	$M = 7.31$ $SD = 1.58$
5. You were engaged in challenging tasks in new roles and/or in unfamiliar settings.	$M = 7.18$ $SD = 1.62$
6. You clearly understood the learning goals and assessment of the program.	$M = 7.21$ $SD = 1.65$
7. You clearly understood the service goals of the program.	$M = 7.70$ $SD = 1.56$
8. You recognized the service project's importance to the community's need.	$M = 7.21$ $SD = 1.83$
9. You assisted with tasks that provide unique assistance to the community.	$M = 6.65$ $SD = 1.78$
10. You had a significant voice in selecting, designing, implementing, and evaluating the service project.	$M = 6.51$ $SD = 1.71$
11. You worked with a diverse group and appreciated the diversity.	$M = 6.87$ $SD = 1.68$

12. You were encouraged to seek out ways to ensure interaction between and respect for all persons involved.	<i>M</i> = 7.49 <i>SD</i> = 1.48
13. You were engaged in a wide variety of community participants and groups in the service project.	<i>M</i> = 7.17 <i>SD</i> = 1.82
14. You had a good orientation to the community and people with whom you worked in the service project.	<i>M</i> = 6.58 <i>SD</i> = 1.67
15. You developed cooperatively an agreement concerning your roles and tasks with the teacher, community partners, and group members.	<i>M</i> = 7.32 <i>SD</i> = 1.49
16. You had reflection before, during, and after service.	<i>M</i> = 7.36 <i>SD</i> = 1.60
17. You used multiple methods of reflection.	<i>M</i> = 6.59 <i>SD</i> = 1.59
18. You observed that everyone involved in the program actively engaged in reflection.	<i>M</i> = 6.77 <i>SD</i> = 1.66
19. You learned to acquire, evaluate, and synthesize learning from your service experience and apply it to your own life and to the broader community.	<i>M</i> = 6.83 <i>SD</i> = 1.62
20. You made connection between the service project and the curricular objectives.	<i>M</i> = 6.70 <i>SD</i> = 1.63
Overall	<i>M</i> = 6.97 <i>SD</i> = 1.21

We also explored the reasons for those who did not join SL. The top three reasons for the alumni who did not join the SL included “schedule problems” (33.6%, $n = 116$), “not interested in SL” (33.0%, $n = 114$), and “no related course available” (23.2%, $n = 80$). A significant portion of respondents were willing to join SL, but scheduling and lack of related courses restricted their participation.

Correlation Among Scales

To start the analysis, we tested the reliability of the impact study’s main measurement scales, which included the scales of ABC skills (14 items), civic responsibility (23 items), and career exploration (four items). The reliability of ABC skills and civic responsibility was satisfying in terms of internal consistency, with reported Cronbach alpha coefficients of 0.90 and 0.95, respectively. For career exploration, the Cronbach alpha coefficient was 0.52, which indicated poor internal consistency (a value of more than 0.7 is acceptable). Deleting question G1 raised the alpha to 0.65, but this still left the alpha at an unacceptable level. As Cronbach alpha values are quite sensitive to the number of items in the scale, researchers need to use the mean interitem correlations (0.27) as

the indicator of the scale's internal consistency when they use fewer than 10 items (0.2 to 0.4 is acceptable; see Table 3).

Table 3. Reliabilities of the Three Measurement Scales

Instruments	Items	N	Alpha	Interitem correlations
ABC Skills				
Communication skills	3	768	0.78	--
Organizational skills	3	766	0.74	--
Social competence	3	767	0.80	--
Problem-solving skills	3	767	0.64	0.38
Research skills	2	768	0.70	--
Overall	14	763	0.90	--
Civic Responsibility				
Connection to community	4	769	0.79	--
Civic awareness	9	768	0.89	--
Civic efficacy	10	766	0.89	--
Overall	23	765	0.95	--
Career Exploration				
Learning impacts on students	3	769	0.47	0.30
Career development	1	--	--	--
Overall	4	769	0.52	0.27

After confirming the reliability of the scales, we used Pearson correlation to indicate the correlation among the scales. We found small, positive, and significant correlations between participation in SL and ABC skills ($r = 0.10, p < 0.01$), civic responsibility ($r = 0.24, p < 0.001$), and career exploration ($r = 0.08, p < 0.05$). We found a medium, positive, and significant correlation between ABC skills and civic responsibility ($r = 0.42, p < 0.001$) as well as career exploration ($r = 0.46, p < 0.001$). Finally, we found a strong, positive, and significant correlation to be generated between civic responsibility and career exploration ($r = 0.60, p < 0.001$; see Table 4).

Table 4. Pearson Correlation Matrix for SL Participants: ABC Skills, Civic Responsibility, and Career Exploration

	Participated in SL	ABC skills	Civic responsibility
Participated in SL			
ABC Skills	.10**	—	
Civic responsibility	.24***	.42***	
Career exploration	.08*	.46***	.60***

Note. *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at 0.001 level (2-tailed).

Comparison Among Comparison Group and Experiential Group

We employed the independent samples *t*-test, a frequently used test, to compare the continuous variable (mean scores) for the two different groups (alumni with SL experience and alumni without; *Pallant, 2010*). The results showed a significant difference in the ABC skills ($t = 2.82, p < 0.01$), civic responsibility ($t = 6.57, p < 0.001$), and career exploration ($t = 2.18, p < 0.01$) for the alumni with SL experience and alumni without. The magnitude of the differences in the means was small in ABC skills ($\eta^2 = 0.01$) and very small in civic responsibility and career exploration ($\eta^2 = 0.00$; see Table 5).

Table 5. Comparison of ABC Skills, Civic Responsibility, and Career Exploration in SL Participants and Nonparticipants

	Joined SL			Did not join SL			t-test		
	n	M	SD	n	M	SD	Differences	t	p
ABC Skills									
Communication skills	424	7.40	1.21	345	7.09	1.43	0.31	3.21***	0.001
Organization skills	424	7.32	1.10	345	7.25	1.30	0.07	0.78	0.436
Social competence	424	7.58	1.09	345	7.45	1.36	0.13	1.41	0.158
Problem solving	424	7.21	1.05	345	6.98	1.18	0.24	2.92**	0.004
Research skills	424	6.77	1.26	345	6.43	1.61	0.34	3.17**	0.002
Overall	424	7.29	0.93	345	7.08	1.09	0.21	2.82**	0.005
Civic Responsibility									
Connection to community	424	6.20	1.33	345	5.47	1.66	0.74	6.71***	0.000
Civic awareness	424	6.28	1.25	345	5.69	1.52	0.58	5.73***	0.000
Civic efficacy	424	5.21	1.31	345	4.55	1.59	0.66	6.23***	0.000

Overall	424	5.80	1.20	345	5.16	1.47	0.65	6.57***	0.000
Career Exploration									
Learning impacts on students	424	6.37	2.07	345	5.98	1.73	0.40	2.83**	0.005
Career development	424	7.19	1.57	345	7.35	1.92	-0.16	-1.26	0.209
Overall	424	6.58	1.69	345	6.32	1.56	0.26	2.18*	0.030

Note. *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at the 0.001 level (2-tailed).

Service-Learning's Impact on Learning Outcomes Among Graduates

Although we found no significant difference in grade point average (GPA) between the alumni with and without SL experience, we did find significant differences in learning outcomes, especially the overall perceived ABC skills between the alumni with SL experience and those without ($t = 2.82, p < 0.01$). The ABC skills are considered crucial learning outcome indicators because they are based on the ABC education (adaptability, brain power, and creativity) model used in Lingnan's liberal arts education, which administrators believe reflects the extent of students' whole-person development. The ABC skills model contains 14 items in five domains: communication skills, organizational skills, social competence, problem-solving skills, and research skills. The alumni with SL experience had higher means in all five outcome domains than did the alumni without. Furthermore, in three of the five domains, the results indicated significant differences between the alumni with SL experience and those without: communication skills ($t = 3.21, p < 0.001$), problem-solving skills ($t = 2.92, p < 0.01$), and research skills ($t = 3.17, p < 0.01$). These results suggest that SL has a significant impact on students' perceived learning outcome in terms of developing their communication skills, problem-solving skills, and research skills.

We also found positive and significant correlations between some learning outcome domains and SL participation. For instance, a positive correlation was found between social competence and problem-solving skills ($r = 0.66, p < 0.001$) as well as organizational skills ($r = 0.66, p < 0.001$; see details in Table 5). Furthermore, the results showed small and positive correlations between participation in SL and communication skills ($r = 0.12, p < 0.001$), problem-solving skills ($r = 0.11, p < 0.01$), and research skills ($r = 0.12, p < 0.001$).

Table 6. Pearson Correlation Matrix of the Learning Outcome Domains and Participation of SL

	SL	CS	OS	SC	PS	RS
Participation in SL (SL)	—					
Communication skills (CS)	0.12***	—				
Organization skills (OS)	0.03	0.59***	—			
Social Competence (SC)	0.02	0.65***	0.66***	—		
Problem Solving (PS)	0.11**	0.59***	0.64***	0.66***	—	
Research skills (RS)	0.12***	0.42***	0.44***	0.39***	0.59***	—

Note. **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at the 0.001 level (2-tailed).

The Impact of Service-Learning on Civic Responsibility Among Graduates

A lasting impact on civic responsibility is important for one's whole-person development. Studies indicate that students who participated in SL were more likely to engage in community service—even beyond their school projects—and to have a heightened sense of civic responsibility (Bringle & Steinberg, 2010; Misa & Anderson, 2005; National Commission on Service-Learning, 2002). Apart from the percentage with involvement and average number of service hours per month, we also found a significant difference in the scale of overall civic responsibility between alumni with SL experience and alumni without ($t = 6.57, p < 0.001$). The civic responsibility scale consisted of 23 items, which were divided into three civic domains: connection to community, civic awareness, and civic efficacy. The alumni with SL experience had statistically significant higher mean scores than alumni without in regards to connection to community ($t = 6.71, p < 0.001$), civic awareness ($t = 5.73, p < 0.001$) and civic efficacy ($t = 6.23, p < 0.001$). Those outcomes illustrate the scale on which SL can enhance students' civic responsibility in the long run.

We also found a positive and significant correlation across all domains of civic responsibility and participation in SL (see Table 6). Results also showed a small and positive correlation between participation in SL and connection to community ($r = 0.24, p < 0.001$), civic awareness ($r = 0.21, p < 0.001$), and civic efficacy ($r = 0.22, p < 0.001$).

The results showed that community involvement during undergraduate years was a crucial element for students' whole-person development, civic responsibility, and career exploration beyond graduation. We found significant differences in ABC skills ($t = 2.53, p < 0.05$), civic responsibility ($t = 7.75, p < 0.001$), and career exploration ($t = 4.53, p < 0.001$) among graduates who joined com-

munity service during their undergraduate years (involving both alumni with and without SL experience). However, SL had a higher impact on students' development of civic responsibility than on development of community service. The alumni with SL experience reported a higher mean of civic responsibility ($M = 5.80$, $SD = 1.20$) than did alumni who did not participate in SL but who had community involvement during their undergraduate years ($M = 5.53$, $SD = 1.40$). We also found a significant difference ($t = 2.24$, $p < 0.05$) in the independent sample t tests.

Table 7. Pearson Correlation Matrix of Civic Responsibility and Participation in SL

	SL	CC	CA	CE
Participation of SL (SL)	--			
Connection to community (CC)	0.24***	--		
Civic awareness (CA)	0.21***	0.82***	--	
Civic efficacy (CE)	0.22***	0.75***	0.82***	--

Note: *** Correlation is significant at the 0.001 level (2 tailed).

The Impact of Service-Learning on Career Exploration among Graduates

Career exploration's impact came across in the career exploration scale, in the development of the skills for a career, and in career choices. Some studies have also demonstrated that SL students had received assistance in exploring their career interests, in developing their skills for future careers, and in confirming their career choices through participating in SL (Eyler, Giles, Stenson, & Gray, 2001; Miller & Gonzalez, 2009).

For career exploration, alumni with SL experience had higher overall scores ($M = 6.58$, $SD = 1.69$) than did the alumni without ($M = 6.32$, $SD = 1.56$), and we found a significant difference here ($t = 2.18$, $p < 0.05$). The scale of career exploration included four items that were divided into two domains: learning impacts on students and career development. The alumni with SL experience had significantly higher scores ($M = 6.37$, $SD = 2.07$) than the alumni without ($M = 5.98$, $SD = 1.73$). These data indicate that SL has a significant impact on students' career exploration.

We found a small, positive, and significant correlation between impact on career and participation in SL ($r = 0.10$, $p < 0.01$; see Table 8).

Table 8. Pearson Correlation Matrix of Career Exploration and Participation in SL

	SL	CC	CA
Participation in SL (SL)	--		
Learning impacts on students (LI)	0.10**	--	
Career Development (CD)	-0.05	0.31***	--

Note. **Correlation is significant at the 0.01 level (2-tailed). ***Correlation is significant at the 0.001 level (2-tailed).

For the development of skills for a career, we found a positive and significant correlation among the domains of learning outcome and career (see Table 9). That is, SL participation had a significant impact on communication skills, problem-solving skills, and research skills, which are the skills related to career domains (learning impacts on students and career development). This indicates that SL participation can help students develop skills that are useful for their future careers.

Table 9. Pearson Correlation Matrix of the Learning Outcome Domains and Career Domains

	OS	SC	PS	RS	LI	CD
Communication skills (CS)	--					
Organization skills (OSO)	.59***	--				
Social competence (SC)	.65***	.66***	--			
Problem solving (PS)	.59***	.64***	.66***	--		
Research skills (RS)	.42***	.44***	.39***	.59***	--	
Learning impacts on students (LI)	.30***	.24***	.29***	.34***	.30***	--
Career development (CD)	.45***	.43***	.45***	.40***	.33***	.31***

Note. ***Correlation is significant at the 0.00 level (2-tailed).

For the career choices, although results showed no significant difference between alumni with SL experience and alumni without, SL and community involvement during undergraduate years had a significant impact on students' career choices overall. We found a significant difference in whether community involvement impacted career choices among graduates who participated in community service during their undergraduate years ($t = 5.38$, $p < 0.001$). Graduates who participated in community service during their undergraduate years reported a higher mean ($M = 4.93$, $SD = 2.38$) than graduates who did not ($M = 3.82$, $SD = 2.37$).

Limitation

This is the first study in Hong Kong to discuss the impact of SL on graduates. However, there are some limitations due to the design of the study. First, this study focused on self-reported quantitative data. Thus, it would be beneficial to collect qualitative data for triangulation and further understanding of the factors that are influencing students' learning outcomes and the impact of SL. Second, instructors' and agency supervisors' views on SL impact are also important for understanding SL impact on students/graduates, especially for civic responsibility. Therefore, a study with different stakeholders' views about the impact of SL will be needed to present a more comprehensive picture on SL impact. Next, graduates may need more time to develop their career. Compared to an alumni study by Maynard (2011), which examined subjects 8–15 years after graduation, our study examined respondents with a relatively short average period of work experience (2.5 years). Therefore, we recommend conducting a second impact study 10 years after the earliest graduation year of respondents with SL experience in order to measure the long-term impact of SL on graduates.

Conclusion

This study demonstrates that SL in Hong Kong has long-term and multiple impacts, to various degrees, on graduates' whole-person development, sense of civic responsibility, and career exploration. The great potential of SL for engaging students in many critical learning activities is reflected in graduates' development of cognitive ability and social skills such as communication, research skills, problem solving, and organizational skills. In general, respondents who had participated in SL had a positive attitude toward it during their undergraduate studies. Furthermore, it had a higher long-term impact than community service on developing students' sense of civic responsibility because it is embedded in the curriculum and helps foster future community leaders. Integrating SL into courses is beneficial because it not only addresses faculty concerns about participation in service and academic learning, but also lets faculty further understand how students learn throughout the course (Astin & Vogelgesang, 2000).

Although the results showed no significant difference in salary and position between alumni with SL experience and alumni with no SL experience, SL involvement helped students to develop their skills—particularly communication, problem-solving, and research skills—for future careers, and it also influenced students'

career choices (Astin & Vogelgesang, 2000; Astin, Vogelgesang, Ikeda, & Yee, 2000). The number of research studies in these areas in Asia remains limited, so more studies are needed in the future to determine what specific elements of the SL experience contribute to these areas of growth.

References

- Astin, A. W., & Vogelgesang, L. J. (2000). Comparing the effects of community service and service-learning. *Michigan Journal of Community Service Learning*, 7(1), 25–34.
- Astin, A. W., Vogelgesang, L. J., Ikeda, E. K., & Yee, J. A. (2000). *How service-learning affects students*. Los Angeles, CA: University of California Los Angeles, Higher Education Research Institute.
- Astin, A. W., Vogelgesang, L. J., Misa, K., Anderson, J., Denson, N., Jayakumar, U,... Yamamura, E. (2006). *Understanding the effects of service-learning: A study of students and faculty*. Los Angeles, CA: UCLA Higher Education Research Institute.
- Bernard, H. R. (2002). *Research methods in anthropology: Qualitative and quantitative methods* (3rd ed.). Walnut Creek, CA: Altamira Press.
- Bernard, H. R., Pelto, P. J., Werner, O., Booster, J., Romney, A. K., Johnson, A., & Kasakoff, A. (1986). The construction of primary data in cultural anthropology. *Current Anthropology*, 27, 382–396.
- Bringle, G. R., & Steinberg, K. (2010). Educating for informed community involvement. *American Journal of Community Psychology*, 46, 428–441.
- Chan, C. M., Lee, K. M., & Ma, H. K. (2009). Service-learning model at Lingnan University: Development strategies and outcome assessment. *New Horizons in Education*, 3, 7–73.
- Chan, C. M., Ma, H. K., & Fong, M. S. (2006). *SL and research scheme: The Lingnan's model*. Hong Kong: Office of Service-Learning, Lingnan University.
- Eyler, J. S., Giles, J. D. E., Stenson, C. M., & Gray, C. J. (2001). *At a glance: What we know about the effects of service-learning on college students, faculty, institutions and communities, 1993–2000* (3rd ed.). Retrieved from <https://www.mnnsu.edu/cetl/academicservicelearning/Service-Learning.pdf>
- Furco, A. (1995). *Evaluation system for experiential education: Evaluation Guide*. University of California, Berkeley. Retrieved from <http://digitalcommons.unomaha.edu/cgi/viewcontent.cgi?article=1044&context=sleeval>
- Furco, A., Muller, P., & Ammon, M. S. (1998). *Civic responsibility survey*. Berkeley, CA: Service-Learning Research and Development Center, University of California, Berkeley.
- Gray, M. J., Ondaatje, E. H., Fricker, R. D., Geschwind, S. A., Goldman, C. A., Kaganoff, T, ... Klein, S. P. (1999). *Combining service and learning in higher education: Evaluation of the Learn and Serve America, Higher Education program*. Los Angeles, CA: RAND Corporation.

- Hébert, A., & Hauf, P. (2015). Student learning through service learning: Effects on academic development, civic responsibility, interpersonal skills and practical skills. *Active Learning in Higher Education*, 16, 37–49. doi: 10.1177/1469787415573357
- Huff, J., Zoltowski, C., & Oakes, W. (2016). Preparing engineers for the workplace through service learning: Perceptions of EPICS alumni. *The Research Journal for Engineering Education*, 105(1), 43–69. doi: 10.1002/jee.20107
- Karlsson, C. (2016). Assessment of career development in community-based learning: A case study among American university students. *The International Undergraduate Journal for Service-Learning, Leadership, and Social Change*, 6(1), 22–35.
- Ma, D. C. T. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5, 147–158.
- Maynard, T. J. (2011). *The relationship of undergraduate community service to alumni community involvement and leadership* (Unpublished doctoral dissertation). Johnson & Wales University. Retrieved from <http://scholarsarchive.jwu.edu/dissertations/AAI3456399>
- Merrell, K. W. (2002). *School social behavior scales* (2nd ed.). Baltimore, MD: Paul H. Brookes.
- Miller, K. K., & Gonzalez, A. M. (2009). Service learning in domestic and international settings. *College Student Journal*, 43(2), 527–536.
- Misa, K., & Anderson, J. (2005). *Conceptualizing, measuring and understanding students' post college civic engagement: What we know about the impact of service-learning* [PowerPoint slides]. Retrieved from <http://www.heri.ucla.edu/PP/Continuums.ppt>
- National Commission on Service-Learning. (2002). *Learning in deed: The power of service-learning for American schools*. Retrieved from <http://www.wkkf.org/resource-directory/resource/2002/10/learning-in-deed-the-power-of-service-learning-for-american-schools-full-report>
- National Service-Learning Cooperative. (1999). *Essential elements of service-learning*. St. Paul, MN: National Youth Leadership Council.
- Ngai, S. Y. (2006). Service-learning, personal development, and social commitment: A case study of university students in Hong Kong. *Adolescence*, 41(161), 165–176.
- Ngai, S. Y. (2009). The effects of program characteristics and psychological engagement on service-learning outcomes: A study of university students in Hong Kong. *Adolescence*, 44(174), 375–389.
- Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4th ed.). Maidenhead, UK: McGraw-Hill.
- Powers, H. (2010). The community-based instruction program at Hong Kong Baptist University. In J. Xing & H. K. Ma (Eds.), *Service-learning in Asia: Curricular models and practices* (pp. 73–84). Hong Kong: Hong Kong University Press.
- Prentice, M., & Robinson, G. (2010). *Improving student learning outcomes with service learning*. Washington, DC: American Association of Community Colleges.

About the Authors

Carol Ma Hok-ka is an adjunct assistant professor, Department of Sociology and Social Policy, and associate director of service-learning, Office of Service-Learning, Lingnan University, Hong Kong. She earned her Ph.D. from Lingnan University.

Chad Chan Wing-fung is a senior project officer (research), Office of Service-Learning, Lingnan University, Hong Kong. He earned his MPhil from Lingnan University.

Alfred Chan Cheung-ming is a chair professor of social gerontology, Department of Sociology and Social Policy, and director of service-learning, Office of Service-Learning, Lingnan University, Hong Kong. He earned his Ph.D. from the University of Surrey.